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(19)(CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) Process for Measuring the Value or Performance of an Organization or Intangible Asset

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"PROCESS FOR MEASURING THE VALUE OR PERFORMANCE OF AN ORGANIZATION OR INTANGIBLE ASSET"

ABSTRACT OF THE DISCLOSURE

A process for measuring the value or performance of an organization or intangible asset provides a graphical illustration of the performance or value of an asset by (1) establishing first and second variables related to the value of the intangible asset of interest, (2) establishing a series of performance criteria statements probative of the value of the first and second variables, (3) generating first and second total scores based upon the extent to which individual statements accurately describe the intangible asset of interest, (4) creating a chart having a first axis relating to the first variable and a second axis relating to the second variable, (5) plotting a point on the chart, the point being located at coordinates corresponding to the first and second total scores, respectively, and (6) using the chart in making at least one decision regarding the value of said intangible asset of interest.

PROCESS FOR MEASURING THE VALUE OR PERFORMANCE OF AN ORGANIZATION OR INTANGIBLE ASSET

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates in general to processes used by consultants, analysts, and executives for evaluating intangible assets, and in particular to a system for providing a definitive measurement of the value or performance of a technology, an organization, or other intangible asset of interest.

2. Related Art

Systems have been known for producing a grid-type graphical representation of the relative value of two dependent variables. One example of such systems is known as the Risk Management Matrix, used by the Boston Consulting Group for portfolio analysis. The Risk Management Matrix uses "Relative Market Share" and "Growth" as the two axes on a four-quadrant grid. These terms represent cash generation and cash use, respectively, and thus two dependent variables are represented on the axes of the grid. Such analyses are discussed in detail in "A Manager's Guide to Technology Forecasting and Strategic Analysis Methods," Stephen M. Millet and Edward J. Honton, Batelle Press, 1991, which is incorporated herein by reference. Further, methods of analysis such as the Risk Management Matrix are qualitative, and the grid axes are normally unscaled. Thus, the position of an intangible asset on such

grids is not subject to quantitative analysis. As a result of all of the above, such systems produce a grid which is largely judgmental and arbitrary.

Another known system of analysis is the Blake Managerial Grid, discussed in detail in "The Managerial Grid," Robert R. Blake and Jane Mouton, Gulf Publishing Company, Library of Congress Number 64-14724, 1964, which is incorporated herein by reference. This grid is used to display different management styles, with one axis representing a concern for production and the other representing a concern for people. Different positions on the grid are used to represent different management approaches, ranging from autocratic to highly permissive. However, The Blake Managerial Grid, like the Risk Management Matrix, results in a positioning which is not arrived at through any disciplined procedure, is not subject to quantitative analysis, and is largely judgmental and arbitrary.

SUMMARY OF THE INVENTION

It is therefore an object of the invention to provide an improved system for measuring the value or performance of a technology, an organization, or other intangible asset of interest.

The process of the invention provides a graphical illustration of the performance or value of an asset by (1) establishing first and second variables related to the value of the intangible asset of interest, (2) establishing a series of performance criteria statements probative of the value of the first and second variables, (3) generating first and second total scores based upon the extent to which individual statements accurately describe the

intangible asset of interest, (4) creating a chart having a first axis relating to the first variable and a second axis relating to the second variable, (5) plotting a point on the chart, the point being located at coordinates corresponding to the first and second total scores, respectively, and (6) using the chart in making at least one decision regarding the value of said intangible asset of interest.

The process of the invention according to a preferred embodiment provides a valuation grid which can be a means for performing, e.g., a quantitative comparison of organizations of a given class, a comparative analysis of various technological assets for venture capital pools, or a quantitative positioning of the level of achievement of an organization with respect to the vision and mission established by its owners.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects, features, and advantages of the invention will be apparent from the following more particular description of preferred embodiments as illustrated in the accompanying drawings. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating principles of the invention.

FIG. 1(a) illustrates a matrix of performance areas reflecting the value or performance of a for-profit company.

FIG. 1(b) illustrates a matrix of performance areas reflecting the value or performance of a research and development organization.

FIG. 1(c) illustrates a matrix of performance areas reflecting the value or performance of a university.

FIG. 1(d) illustrates a matrix of performance areas reflecting the value of a technical asset.

FIG. 2 illustrates examples of performance criteria for cell A2 of the matrix shown in FIG. 1(b).

FIG. 3 illustrates a performance criteria scoring form.

FIG. 4 illustrates a valuation grid produced according to the process of the invention.

FIG. 5 is a table illustrating names and definitions for grid positions in valuation grids for various organizations and assets.

FIG. 6 is a graphical representation of performance area scores created according to the system of the invention.

DETAILED DESCRIPTION OF THE INVENTION

The performance or value of an organization, technology, or other intangible asset can depend on, and be described in terms of, two or more independent variables. The first step in carrying out the process of the invention is to define at least two independent variables which best reflect such performance or value of the particular organization or asset under analysis. For example, the value of a particular technology or technical asset can be understood in terms of its commercial strength versus its technical strength; the value or position of a university can be understood in terms of its teaching excellence versus its research excellence; the value of a research and development organization can be described in terms of its short-term performance

versus its long-term performance; and, the value of a private sector company can be understood in terms of the strength of today's business versus the strength of tomorrow's business. The particular pair of independent variables, including but not limited to those pairs listed above, should be selected according to the type of organization or asset to be evaluated.

For purposes of illustrating the principles of the present invention, the embodiments described herein utilize two independent variables in implementing a valuation; however, it will be appreciated by those skilled in the art that a number of variables greater than two could be utilized without departing from the spirit and scope of the invention.

Once the first step of selecting at least two independent variables has been performed, the second step according to the process of the invention is to establish a series of performance criteria statements probative of the value of the first and second variables. This preferably begins with creation of an array, or matrix, of performance areas, i.e., areas which are considered to be important in evaluating the organization or asset. Examples of performance matrices for various organizations and assets are shown in FIGS. 1a-1d. As will be noted from the figures, the columns A, B, C, etc. preferably vary in either time, spatial, or geographical focus. On the other hand, the rows 1, 2, 3, etc., preferably reflect specific areas of activity or focus.

A number of performance criteria, including performance statements, are then created for each cell in the performance matrix. FIG. 2 illustrates ten performance criteria relating to the performance area in cell A2 ("program management") of the performance matrix shown in FIG. 1(b). Each of the three statements for one criterion

indicates a different level of strength in the performance area to which the criterion relates. As will be discussed in more detail below, the process of the invention according to a preferred embodiment includes a subsequent step in which an evaluator selects, from among the three or four statements for each of the criteria, the one statement which most accurately describes the organization or asset being assessed.

As illustrated in FIG. 2, all of the performance criteria relating to the "program management" performance area are grouped together; however, it may be preferable in some cases to scramble the criteria so that performance criteria relating to one performance area are interspersed with performance criteria relating to other performance areas. Such scrambling can avoid bias during the subsequent selection step.

The performance criteria can be defined by persons with extensive experience in the type of organization or asset being evaluated, or can be selected from a data base of previously-established matrices for similar organizations.

The performance statements preferably have rating levels and axis-weighting factors associated with them. With respect to rating levels, these are identified in FIG. 2 as rating levels 1, 2, and 3 along the top row of the chart. In the example shown in FIG. 2, statements which reflect a low degree of program management are assigned a rating level of 1, statements which reflect a moderate degree of program management are assigned a rating level of 2, and statements which reflect a high degree of program management are assigned a rating level of 3. If only one statement is used for each performance criteria, it is preferable to assign to it the highest rating level, and a range of numbers used to reflect how close the organization or asset meets the conditions of

that statement. For example, an evaluator could be given a series of single statements and be asked to rate each statement on a scale of 0 to 3, with a rating of zero indicating a low level of compliance with the statement by the organization/intangible asset and a rating of 3 indicating a high level of such compliance. However, the three-statement method, as shown in FIG. 2, is preferred for most applications.

With respect to assignment of axis-weighting factors, this is necessary for accurately plotting the orthogonal relationship between the two independent variables selected above in step 1. Assignment of axis-weighting factors for each of the criteria serves to apportion the rating level of that criteria to the X-axis and Y-axis, respectively. The two right-hand columns in FIG. 2 illustrate assigned weighting factors. The preferred method of performing the assignment is to apportion the value of unity between the two axes; for example, assigning a weighting factor of 1.0 to the X-axis and a weighting factor of 0.0 to the Y-axis would indicate that the criteria contributed entirely to X-axis performance. Likewise, assigning 0.0 to the X-axis and 1.0 to the Y-axis would indicate that the criteria contributed entirely to Y-axis performance; and, assigning 0.5 to each of the axes would indicate that the contribution was equally divided between the two axes.

The third step is to undertake the assessment and calculate scores for each of the independent variables. An evaluator is given a complete set of forms similar to that shown in FIG. 2, but with criteria for each of the performance areas on the appropriate performance matrix, and he selects (e.g., by circling) for each of the criteria the one statement which best describes the organization or asset being evaluated. The assessment may be undertaken by a range of stakeholders, such as the staff of an

organization at various organizational levels, the owners, key clients, or alliance partners.

Once the assessment has been undertaken, the results are preferably compiled in a form as shown in FIG. 3. In the example of FIG. 3, there are 96 criteria for the ten performance areas shown in FIG. 1b. In this particular example, a three-level rating was used, with a numerical rating of 0 assigned to statements which reflect the lowest performance in the corresponding performance area, a numerical rating of 1 assigned to statements which reflect a moderate performance in the performance area, and a numerical rating of 2 assigned to statements which reflect a high performance in the performance area.

For each criteria, the rating level of the statement selected is multiplied by the X-axis weight to obtain the X-axis contribution, and by the Y-axis weight to obtain the Y-axis contribution. The X-axis contributions are summed and the Y-axis contributions are summed; the resulting totals are shown at the bottom right of the form in FIG. 3. In the example of FIG. 3, the X total is 72.5 out of a maximum 96, and the Y total is 47.5 out of a maximum 96.

The fourth step is to plot the X-axis total and the Y-axis total on an evaluation grid, with the independent variables as axes. FIG. 4 illustrates such an evaluation grid resulting from application of the process of the invention to a research and development organization. The grid shown in FIG. 4 comprises a ten-point scale; thus, the total values obtained above of 72.5 for the X-axis and 47.5 for the Y-axis correspond to plot positions of 7.6 and 4.9, respectively, on the grid.

To make the graphical illustration shown in FIG. 4 more meaningful, it is preferable to assign names to each of the four quadrants in the evaluation grid. In FIG. 4, the quadrants are assigned the names "Transformer," "Pacesetter," "Improver," and "Still Evolving." FIG. 5 illustrates names and definitions associated with the quadrants in four types of evaluation grids.

A valuation grid for a technology would show the positioning of the technology in one of the four quadrants, e.g., "Specialty" in an upper left quadrant, "Pacesetter" in an upper right quadrant, "Commodity" in a lower right quadrant, and "Not Ready" in a lower left quadrant. At the inception of a new idea, the technology may be considered to lie at the origin. As the idea matures into a bona fide technology, it will follow a trajectory through the "Not Ready" quadrant to one of the other three quadrants. If the technology follows a forty-five degree diagonal, this indicates that technical and market developments are proceeding in parallel. If the market develops faster than the technology, the trajectory will move into the "Commodity" quadrant; conversely, if technical progress proceeds faster than market development, the trajectory will move into the "Specialty" quadrant. The position in which the trajectory terminates determines the overall merits of the technology. The higher the trajectory proceeds into the "Pacesetter" quadrant, the more likely it is that there will be a high level of commercial success.

It is also useful to create a chart showing the scores for each of the performance areas. Such a chart is illustrated in FIG. 6. This step provides a more-detailed graphical representation of the information represented in the evaluation grid by identifying the specific strengths and weaknesses of the organization or asset being

evaluated. If the performance criteria have been scrambled as described above with regard to the third step, it may be necessary to unscramble the criteria in order to obtain scores for each performance area.

The final step is to interpret the results for purposes of making decisions regarding the value of the intangible asset or organization. Such decisions include, e.g., whether to invest capital in a technology, how to develop a strategic plan to optimize an asset's future value, which programs to fund among competing programs within an organization, and whether an organization has met a level of achievement set forth in a mission established by its owners.

Depending upon which evaluators have undertaken the analysis, various conclusions can be drawn from the results, and those conclusions can be of importance to various stakeholders. Regarding the four particular types of organizations/assets described herein (i.e., a company, a research and development organization, a university, and a technology), the process of the invention provides quantitative information in at least the following areas.

With respect to companies, managers of companies are expected to manage the current business activities of the company in an efficient and cost-effective manner, and at the same time ensure long-term survival of the company by developing new business opportunities to replace maturing and aging products and markets; the process of the invention quantitatively identifies how well the company has met these two objectives.

With respect to research and development organizations, the owners and managers of such organizations must meet the short-term needs of their clients, and also renew their intellectual capital through longer-term scientific and technological

investigations, making the large transformations needed to create future business opportunities; the process of the invention will identify how successful the managers have been in meeting these objectives.

With respect to universities, such institutions differ in their respective emphasis on research and teaching; the process of the invention makes it possible to measure their performance with respect to these sometimes-competing responsibilities and to achieve the balance desired by the Board of Governors.

With respect to technologies, technology commercialization is made difficult by the high risks involved in introducing new ideas into the marketplace. The process of the invention provides a measurement of the technical and commercial readiness of new technologies and enables investors to choose between competing proposals.

While the invention has been particularly shown and described with reference to a preferred embodiment thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention. For example, a system having three statements per performance criteria has been illustrated above. However, in some applications, such as a technology assessment applications, a four-statement approach may yield better separation.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of evaluating an intangible asset of interest, comprising the steps of:

establishing first and second variables related to the value of said intangible asset of interest;

establishing a series of performance criteria statements probative of the value of said first and second variables;

generating first and second total scores based upon the extent to which individual statements accurately describe said intangible asset of interest;

creating a chart having a first axis relating to said first variable and a second axis relating to said second variable;

plotting a point on said chart, said point being located at coordinates corresponding to said first and second total scores, respectively; and,

using said chart in making at least one decision regarding the value of said intangible asset of interest.

2. The method of claim 1, wherein said generating step comprises the steps of:

choosing, from sets of performance criteria statements in said series, individual statements which most accurately describe said intangible asset of interest;

determining, for each said set of performance criteria statements, first and second scores based at least in part on the particular statement chosen from the set, said first and second scores relating to said first and second variables, respectively;

summing a plurality of said first scores to obtain a first total score relating to said first variable; and,

summing a plurality of said second scores to obtain a second total score relating to said second variable.

3. The method of claim 1, further comprising the steps of:

assigning to each said performance criteria statement first and second weighting factors reflecting an extent of impact of said statement on said value of said first and second variables, respectively;

using said weighting factors in determining said first and second total scores.

4. The method of claim 1, further comprising the step of:

placing a label in each of four quadrants of said chart, each label representing the extent to which points in a quadrant reflect a balance between said first and second variables.

5. The method according to claim 1, wherein said first and second variables comprise two independent variables.

6. The method according to claim 1, wherein said intangible asset of interest comprises a technological asset and wherein said first variable comprises commercial strength.

7. The method according to claim 1, wherein said intangible asset of interest comprises a technological asset and wherein said second variable comprises technical strength.

8. The method according to claim 1, wherein said intangible asset of interest comprises a technological asset and wherein said first variable comprises commercial strength and said second variable comprises technical strength.

9. The method according to claim 1, wherein said intangible asset of interest comprises a research and development organization and wherein said first variable comprises short-term performance.

10. The method according to claim 1, wherein said intangible asset of interest comprises a research and development organization and wherein said second variable comprises long-term performance.

11. The method according to claim 1, wherein said intangible asset of interest comprises a research and development organization and wherein said first variable comprises short-term performance and said second variable comprises long-term performance.

12. The method according to claim 1, wherein said intangible asset of interest comprises a university and wherein said first variable comprises research excellence.

13. The method according to claim 1, wherein said intangible asset of interest comprises a university and wherein said second variable comprises teaching excellence.

14. The method according to claim 1, wherein said intangible asset of interest comprises a university and wherein said first variable comprises research excellence and said second variable comprises teaching excellence.

15. The method according to claim 1, wherein said intangible asset of interest comprises a private-sector company and wherein said first variable comprises the strength of today's business.

16. The method according to claim 1, wherein said intangible asset of interest comprises a private-sector company and wherein said second variable comprises tomorrow's business.

17. The method according to claim 1, wherein said intangible asset of interest comprises a private-sector company and wherein said first variable comprises the strength of today's business and said second variable comprises the strength of tomorrow's business.

18. ´A chart for providing a graphical indication of the value of an intangible asset of interest, wherein said chart is created according to the method of claim 1.

	COMPANY		
	A	B	C
	RUNNING THE ORGANIZATION	SATISFYING TODAY'S STAKEHOLDERS	ENSURING SUSTAINABILITY
1	CORPORATE MISSION	UNDERSTANDING THE MARKET	VISION AND THE LONG TERM CORPORATE PLAN
2	TOOLS OF MANAGEMENT	LINKS WITH CLIENTS	LINKAGE TO INDUSTRY LEADERS
3	CORE COMPETENCIES	LINKS WITH OWNERS AND SHAREHOLDERS	TECHNOLOGICAL OUTREACH
4	HUMAN RESOURCES		

FIG. 1(A)

	R&D ORGANIZATION		
	A	B	C
	INSIDE THE RESEARCH ORGANIZATION	INSIDE THE CORPORATION OR KEY CLIENTS	EXTERNAL TO THE CORPORATION OR KEY CLIENTS
1	VISION AND MISSION	TECHNOLOGY AND THE CORPORATE PLAN	NATIONAL AND INTERNATIONAL TECHNOLOGY LINKAGE
2	PROGRAM MANAGEMENT	CORPORATE CROSS LINKS	LINKAGE TO SCIENCE AND EDUCATION
3	CORE COMPETENCIES AND THE TECHNICAL LADDER	CONTINUITY OF SUPPORT	LINKAGE TO COMMUNITY LEADERS
4	TRAINING AND PROFESSIONAL DEVELOPMENT		

FIG. 1(B)

	UNIVERSITY		
	A	B	C
	INSIDE THE DEPARTMENT	INSIDE THE INSTITUTION	EXTERNAL TO THE INSTITUTION
1	VISION AND MISSION	CONTRIBUTION TO THE OVERARCHING MISSION	LINKS TO LOCAL COMMUNITY
2	COMPETENCIES IN UNDER-GRADUATE PROGRAM	LINKS WITH COGNATE DEPARTMENTS	LINKS TO NATIONAL CENTRES
3	COMPETENCIES IN GRADUATE PROGRAM	CONTINUITY OF SUPPORT	LINKAGE TO INTERNATIONAL CENTRES
4	PROGRAM SUPPORT CAPABILITIES		

FIG. 1(C)

	TECHNICAL ASSET		
	A	B	C
	SCIENTIFIC STRENGTH	TECHNOLOGY STRENGTH	COMMERCIAL STRENGTH
1	TECHNICAL FRAMEWORK	COMMERCIAL READINESS	MARKET CHARACTERISTICS
2	LEVEL OF VERIFICATION	PROPRIETARY STRENGTH	MARGIN AND PROFIT POTENTIAL
3	QUALITY OF PROJECT TEAM	TECHNOLOGY DURABILITY	COMMERCIAL CHANNELS

FIG. 1(D)

BEST PRACTICE	NO	Rating Level 1	Rating Level 2	Rating Level 3	X	Y
PROGRAM MANAGEMENT	1	Measuring projects against our mandate and the core competencies of our staff is the principal method for selecting and evaluating projects.	We have an informal internal process for selecting and evaluating R&D projects which is largely based on the experience of management.	We have developed and utilize formal analytical tools for selecting and evaluating R&D projects.	a	1-a
	2	We rely on longer term assessments of the performance of our R&D projects, and only occasionally make mid-course corrections.	We watch for major deviations in the course of our R&D projects and make adjustments when conditions warrant.	We monitor and evaluate R&D projects frequently and make changes to our project portfolio based on results of these reviews.	b	1-b
	3	Our R&D program is relatively insensitive to ongoing changes in the business climate.	We have few formal program management tools for tracking changes in the business climate, but maintain awareness of these changes through regular contacts with key clients.	We have formal program management tools which reflect factors such as change in markets, competitive developments, capital requirements, risk, etc.	c	1-c
	4	We rely mainly on feedback from our stakeholders regarding the effectiveness of our R&D programs.	We periodically appoint knowledgeable national and international scientific leaders to assess our research programs and our performance.	We use knowledgeable national and international scientific peer groups on a regular basis as one of the most important methods to assess our research programs and our performance.	d	1-d
	5	Our R&D program flows directly from the business interests of our principal owner and key clients.	Our R&D program is derived from our core competencies, and the fit of these competencies to our overall mission.	Our R&D program is based on our principal mandate and the collective expertise of our scientists and engineers.	e	1-e
	6	We publish the results of our R&D; for a variety of reasons, we have generally found it difficult to transfer technology to our principal owner and key clients.	On completion of our R&D projects, we make a conscious effort to transfer the resulting technology to our principal owner and key clients, with mixed success.	We have effective methods to facilitate technology transfer to our principal owner and key clients, and we have many examples where these methods have been successful.	f	1-f
	7	Our staff follow the published literature, including patents, and are generally aware when major new scientific and/or technological developments occur.	Our staff track external scientific and/or technological developments, and make appropriate modifications to their R&D activities.	We have a formal structured process for tracking external scientific and/or technological developments, and we reflect these in our internal R&D program.	g	1-g
	8	Most of our research involves individual effort, but our staff are adept at seeking the advice of experts when required to meet the goals of their projects.	Our organization promotes a team approach for major projects, where individual effort is integrated to achieve collective goals.	We extensively use project teams comprised of researchers from different disciplines and we encourage innovation and risk taking by such teams.	h	1-h
	9	We are relatively self-contained in our technology assets, and have minimum need to acquire scientific knowledge and/or technology from external sources to augment our internal capabilities.	We periodically acquire scientific knowledge and/or technology from external sources when these are required to meet a specific need for a new process, product or service.	We are always search for exploitable scientific knowledge and/or technology and periodically will acquire these from external sources.	i	1-i
	10	When it is necessary to charge external clients for our services, we use cost-based rates.	We charge market-based rates for our services to external clients.	We charge market-based rates for our services to external clients. We have accurate records for all charges associated with individual projects.	j	1-j
				TOTAL X/Y WEIGHTING	SumX	SumY

FIG. 2

CRITERIA	RATING	X WT.	Y WT.	X	Y	CRITERIA	RATING	X WT.	Y WT.	X	Y
1	2	0.5	0.5	1.0	1.0	49	1	0.5	0.5	0.5	0.5
2	1	0.5	0.5	0.5	0.5	50	1	0.0	0.0	0.0	1.0
3	1	0.5	0.5	0.5	0.5	51	1	0.0	1.0	0.0	1.0
4	1	0.5	0.5	0.5	0.5	52	0	0.0	1.0	0.0	0.0
5	2	0.5	0.5	1.0	1.0	53	0	0.0	1.0	0.0	0.0
6	2	1.0	0.0	2.0	0.0	54	0	0.0	1.0	0.0	0.0
7	2	1.0	0.0	2.0	0.0	55	1	0.5	0.5	0.5	0.5
8	2	1.0	0.0	2.0	0.0	56	2	0.5	0.5	1.0	1.0
9	2	1.0	0.0	2.0	0.0	57	0	0.0	1.0	0.0	0.0
10	1	1.0	0.0	1.0	0.0	58	0	0.0	1.0	0.0	0.0
11	2	1.0	0.0	2.0	0.0	59	2	1.0	0.0	2.0	0.0
12	1	1.0	0.0	1.0	0.0	60	0	1.0	0.0	0.0	0.0
13	1	0.5	0.5	0.5	0.5	61	1	0.0	1.0	0.0	1.0
14	2	0.5	0.5	1.0	1.0	62	1	0.0	1.0	0.0	1.0
15	2	1.0	0.0	2.0	0.0	63	2	0.5	0.5	1.0	1.0
16	2	1.0	0.0	2.0	0.0	64	1	1.0	0.0	1.0	0.0
17	1	0.0	1.0	0.0	1.0	65	0	0.0	1.0	0.0	0.0
18	2	0.5	0.5	1.0	1.0	66	2	1.0	0.0	2.0	0.0
19	0	0.0	1.0	0.0	0.0	67	2	0.0	1.0	0.0	2.0
20	1	0.5	0.5	0.5	0.5	68	1	0.0	1.0	0.0	1.0
21	1	0.5	0.5	0.5	0.5	69	2	1.0	0.0	2.0	0.0
22	1	1.0	0.0	1.0	0.0	70	1	0.0	1.0	0.0	1.0
23	0	0.5	0.5	0.0	0.0	71	2	1.0	0.0	2.0	0.0
24	2	1.0	0.0	2.0	0.0	72	1	0.0	1.0	2.0	1.0
25	0	0.0	1.0	0.0	0.0	73	1	0.0	1.0	0.0	1.0
26	1	0.5	0.5	0.5	0.5	74	1	1.0	0.0	1.0	0.0
27	1	0.0	1.0	0.0	1.0	75	1	1.0	0.0	1.0	0.0
28	2	1.0	0.0	2.0	0.0	76	2	1.0	0.0	2.0	0.0
29	2	1.0	0.0	2.0	0.0	77	1	0.5	0.5	0.5	0.5
30	2	1.0	0.0	2.0	0.0	78	2	0.0	1.0	0.0	2.0
31	1	1.0	0.0	1.0	0.0	79	2	0.0	1.0	0.0	2.0
32	2	1.0	0.0	2.0	0.0	80	1	0.5	0.5	0.5	0.5
33	1	1.0	0.0	1.0	0.0	81	2	1.0	0.0	2.0	0.0
34	1	0.0	1.0	0.0	1.0	82	1	0.5	0.5	0.5	0.5
35	1	0.0	1.0	0.0	1.0	83	1	1.0	0.0	1.0	0.0
36	1	0.0	1.0	0.0	1.0	84	2	0.5	0.5	1.0	1.0
37	1	0.0	1.0	0.0	1.0	85	2	0.0	1.0	0.0	2.0
38	1	0.0	1.0	0.0	1.0	86	1	0.5	0.5	0.5	0.5
39	1	0.5	0.5	0.5	0.5	87	2	0.5	0.5	1.0	1.0
40	0	0.0	1.0	0.0	0.0	88	1	0.5	0.5	0.5	0.5
41	2	0.5	0.5	1.0	1.0	89	1	0.5	0.5	0.5	0.5
42	2	1.0	0.0	2.0	0.0	90	1	0.5	0.5	0.5	0.5
43	2	1.0	0.0	2.0	0.0	91	2	0.5	0.5	1.0	1.0
44	1	0.5	0.5	0.5	0.5	92	2	0.5	0.5	1.0	1.0
45	1	0.0	1.0	0.0	1.0	93	2	0.5	0.5	1.0	1.0
46	1	0.5	0.5	0.5	0.5	94	1	0.5	0.5	0.5	0.5
47	0	0.5	0.5	0.0	0.0	95	2	0.5	0.5	1.0	1.0
48	0	0.0	1.0	0.0	0.0	96	1	0.5	0.5	0.5	0.5
SUBTOTAL		27.5	20.5	43.0	18.0	SUBTOTAL		20.5	27.5	29.5	29.5
						TOTAL				72.5	47.5

FIG. 3

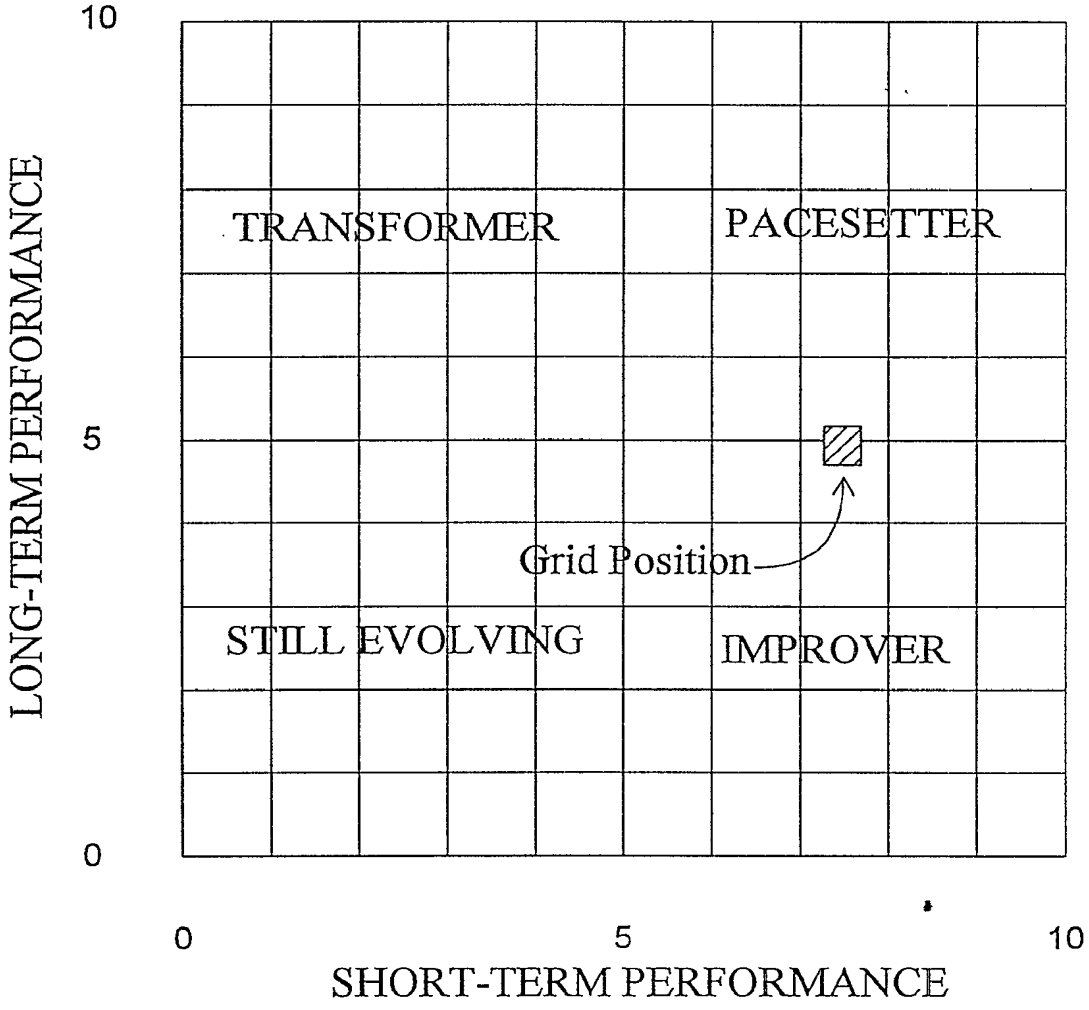
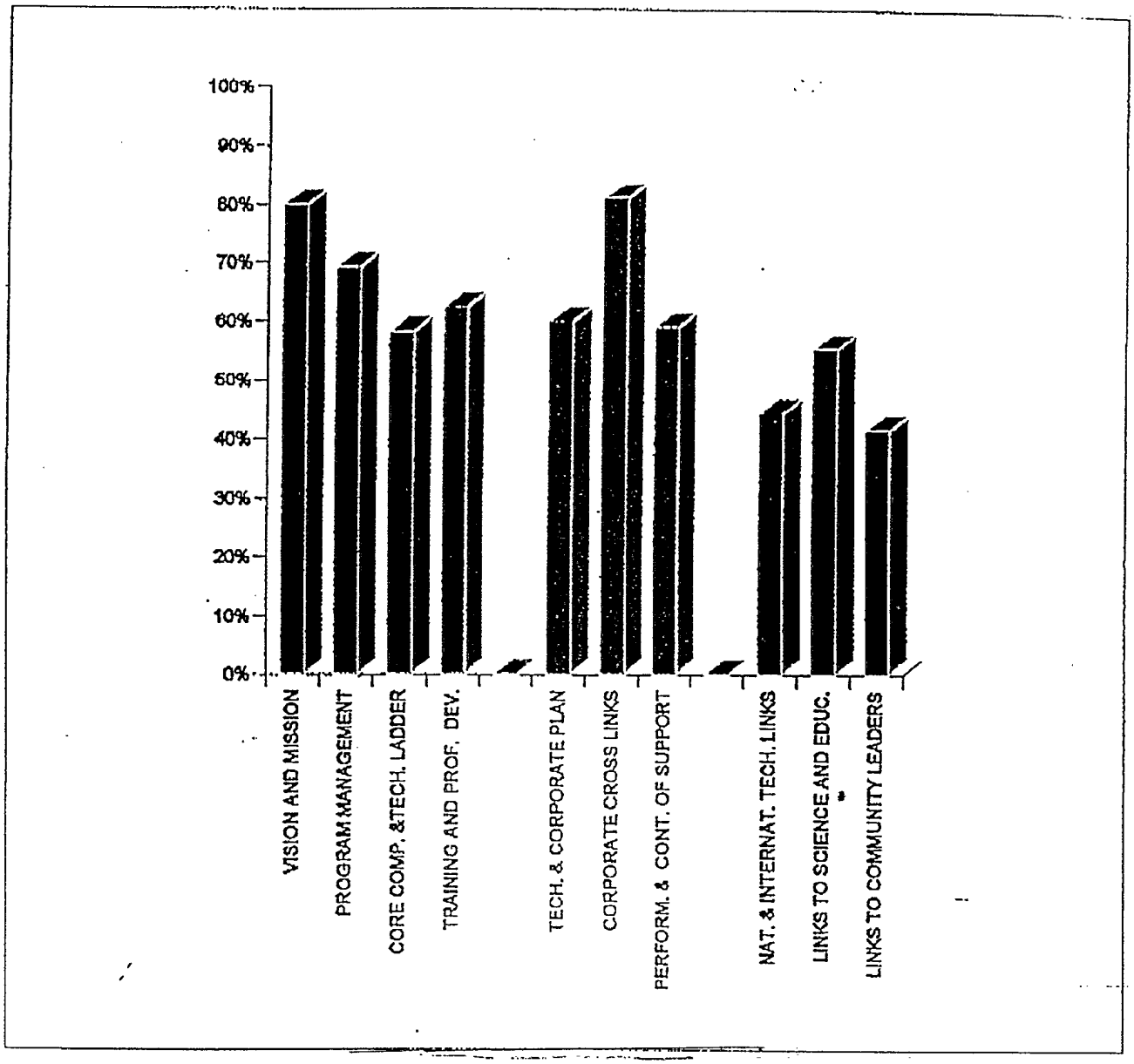

10
5
0
LONG-TERM PERFORMANCE
TRANSFORMER
PACESETTER
Grid Position
STILL EVOLVING
IMPROVER
0
5
10
SHORT-TERM PERFORMANCE

FIG. 4

Application	Quadrant	Ultimate Grid Position	Definition
Company	Market Leader	10,0	Current products and services dominate the market; there is no emphasis on developing new products and services.
	Innovator	0,10	New products and services are being developed, with little effort towards defining or creating a market demand.
	Pacesetter	10,0	Well-balanced company, a market leader with current products and services, having active programs to develop new customers, new products and new services.
	Still evolving	0,0	
R&D Organization	Improver	10,0	Meets the technical needs of current customers, with effective continuous improvement programs.
	Transformer	0,10	Developer of major new processes and products, and/or extending the boundaries of science, with no immediate market connection.
	Pacesetter	10,10	Well-balanced organization, effective in meeting the needs of current clients, but constantly developing and searching for new clients, new products and new services.
	Still evolving		
University	Teaching University	10,0	University well-recognized for exceptional skills in teaching.
	Research Institute	0,10	Research institute with a university style structure but exclusively focused on research and extending the boundaries of knowledge.
	Research University	10,10	University which has effectively coupled its teaching and research skills.
	Still evolving	0,0	
Technical Asset	Commodity	10,0	A product or service having high current market acceptance with minimum technical content.
	Specialty	0,10	A highly technical product or service which has an ill-defined or small existing or potential market.
	Pacesetter	10,10	A highly technical product or service that has or is expected to have a major market impact.
	Not ready	0,0	

FIG. 5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VISION AND MISSION
PROGRAM MANAGEMENT
CORE COMP. &TECH. LADDER
TRAINING AND PROF. DEV.
TECH. & CORPORATE PLAN
CORPORATE CROSS LINKS
PERFORM. & CONT. OF SUPPORT
NAT. & INTERNAT. TECH. LINKS
LINKS TO SCIENCE AND EDUC.
LINKS TO COMMUNITY LEADERS

FIG. 6